

MMP-20 siRNA (h): sc-41561

BACKGROUND

Matrix metalloproteinases (MMPs) are highly homologous Zn²⁺ endopeptidases involved in extracellular matrix (ECM) breakdown. MMP-20 (enamelysin) is involved in the degradation of various components of the ECM during development, hemostasis and pathological conditions. The domain organization of MMP-20 is similar to other MMPs, including a signal peptide, a prodomain with the conserved motif PRGVPD involved in maintaining enzyme latency, a catalytic domain with a Zn-binding site and a COOH-terminal fragment similar to the sequence of hemopexin. MMP-20 is expressed during the early through middle stages of enamel development, at which time it likely hydrolyzes Amelogenin, a major protein component of the enamel matrix. The expression pattern of MMP-20 in the enamel organ indicates that it may be involved in the turnover of ECM proteins during tooth development and enamel formation. Human MMP-20 maps to chromosome 11q22.2, clustered to at least seven other members of the MMP gene family.

REFERENCES

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2. Llano, E., Pendás, A.M., Knäuper, V., Sorsa, T., Salo, T., Salido, E., Murphy, G., Simmer, J.P., Bartlett, J.D. and López-Otín, C. 1997. Identification and structural and functional characterization of human enamelysin (MMP-20). *Biochemistry* 49: 15101-15108.
3. Stracke, J.O., Fosang, A.J., Last, K., Mercuri, F.A., Pendas, A.M., Llano, E., Perris, R., Di Cesare, P.E., Murphy, G. and Knäuper, V. 2000. Matrix metalloproteinases 19 and 20 cleave aggrecan and cartilage oligomeric matrix protein (COMP). *FEBS Lett.* 1-2: 52-56.
4. Caterina, J.J., Skobe, Z., Shi, J., Ding, Y., Simmer, J.P., Birkedal-Hansen, H. and Bartlett, J.D. 2002. Enamelysin (matrix metalloproteinase 20)-deficient mice display an amelogenesis imperfecta phenotype. *J. Biol. Chem.* 51: 49598-49604.

CHROMOSOMAL LOCATION

Genetic locus: MMP20 (human) mapping to 11q22.2.

PRODUCT

MMP-20 siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see MMP-20 shRNA Plasmid (h): sc-41561-SH and MMP-20 shRNA (h) Lentiviral Particles: sc-41561-V as alternate gene silencing products.

For independent verification of MMP-20 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-41561A, sc-41561B and sc-41561C.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNases and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCL, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

MMP-20 siRNA (h) is recommended for the inhibition of MMP-20 expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 μ M in 66 μ l. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MMP-20 gene expression knockdown using RT-PCR Primer: MMP-20 (h)-PR: sc-41561-PR (20 μ l, 520 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Nikitakis, N.G., Gkouveris, I., Aseervatham, J., Barahona, K. and Ogbureke, K.U.E. 2018. DSPP-MMP20 gene silencing downregulates cancer stem cell markers in human oral cancer cells. *Cell. Mol. Biol. Lett.* 23: 30.

RESEARCH USE

For research use only, not for use in diagnostic procedures.